Carnegie Institution of Washington

SOLAR OBSERVATORY

MT. WILSON, CALIFORNIA

ADDRESS CORRESPONDENCE TO
SOLAR OBSERVATORY OFFICE, PASADENA, CALIFORNIA

Feb. 8th '07

My dear Mr Knight

Your letter of Feb 6th came today. The Hooker mirror will finish 100 inches in diameter and 13 inches thick. There will be about 2 inches additional diameter and 1 inch additional thickness when it comes to me in the rough. The mirror will weigh about 4½ tons (9000 lbs) when finished.

The silver film on the concave face of the mirror will be about $\frac{1}{300,000}$ inch thick, or approximately 3 or 4 millionths of an inch thick, which is what I said in the lecture. The silvering is done in a chemical bath, the silver being deposited on the glass surface from the silvering solutions. At Yerkes Obsy the silver films lasted in good condition about 6 months; their rapid tarnishing there was doubtless due to the sulphur in the coal-smoke from the power-house 500 feet from the Observatory. On Mt. Wilson, where there will be no smoke, and where the air is very pure, the silver films will doubtless remain practically perfect in brightness for a year. They will probably be renewed every spring, after the damp winter weather is over. The work of resilvering the 5-foot mirror requires about 6 to 8 hours, including its removal from the telescope, ~~and its~~ silvering, burnishing, returning to the telescope and adjusting.

Very Sincerely Yours

G. W. Ritchey

P.S. The 60 inch and 100 inch telescopes will not be used on the Sun. Mirrors which are exposed to the Sun tarnish comparatively rapidly on account of the chemical action of the sunlight on the silver films.

G W. Ritchey.

Made mirror for 60" telescope
" 60" Telescope of Mt Wilson

Made 100- inch mirror — Mt Wilson.